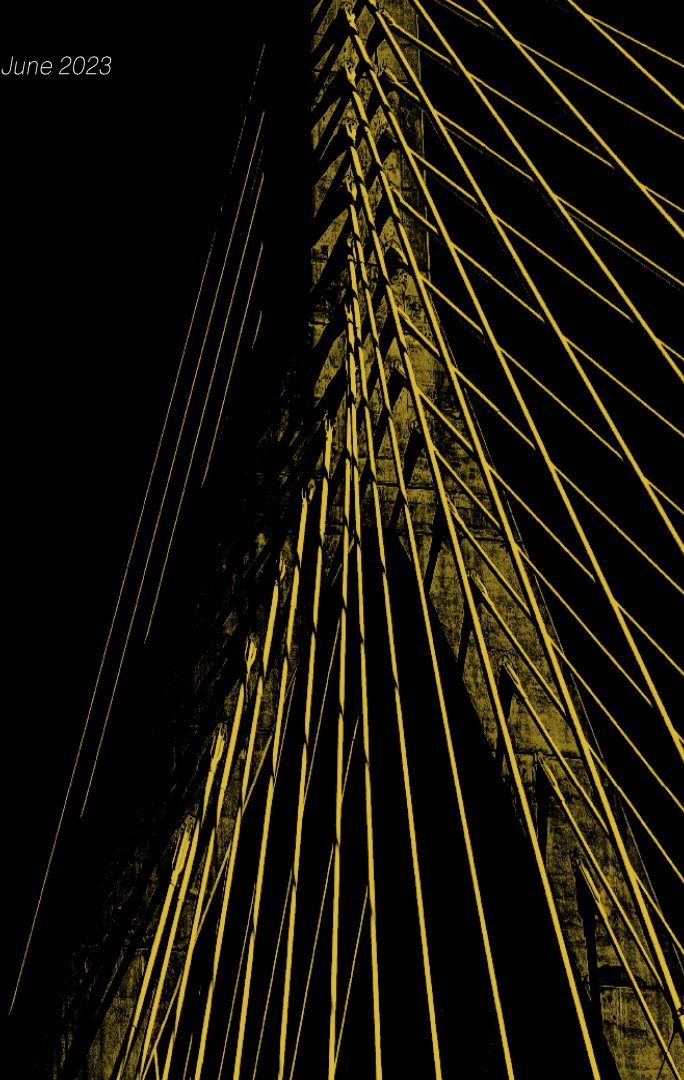
Ross Griffin – 06 June 2023

Implementing ICMS – Should be easy, right?



KOSMOS

Ross Griffin

Founder of KOSMOS
A specialist digital cost
& quantity surveying consultancy

Founder of The Fifth Dimension
A specialist cost data collection
& analytical cloud based software

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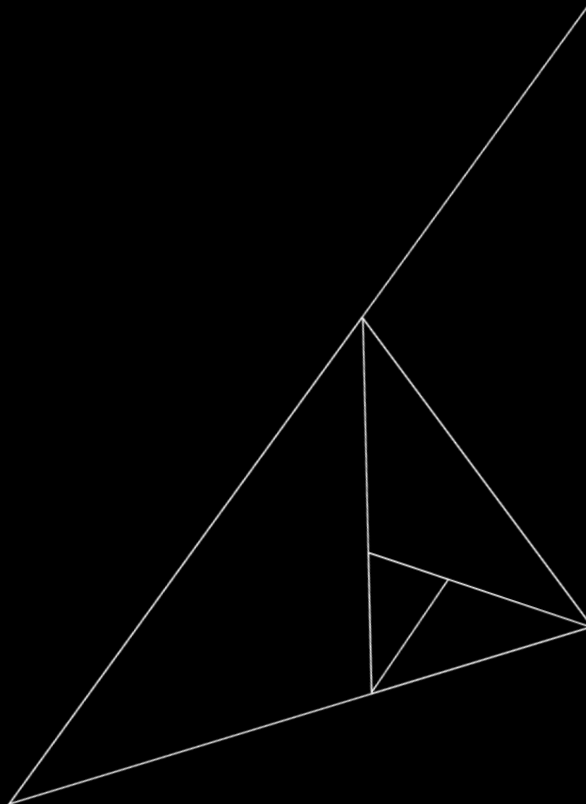
ICMS – International Cost Management Standards

ICMS provides a high-level structure and format for classifying, defining, measuring, recording, analysing and presenting life cycle costs and carbon emissions associated with construction projects and constructed assets



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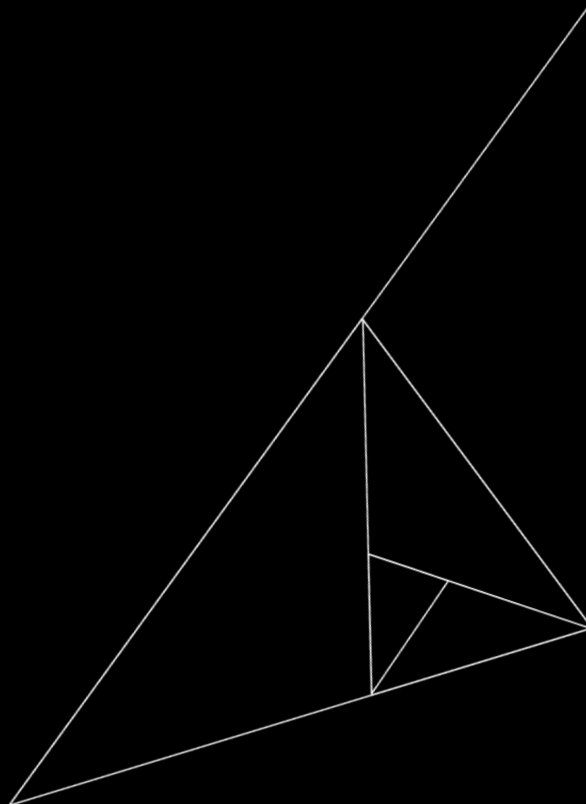
What is ICMS?

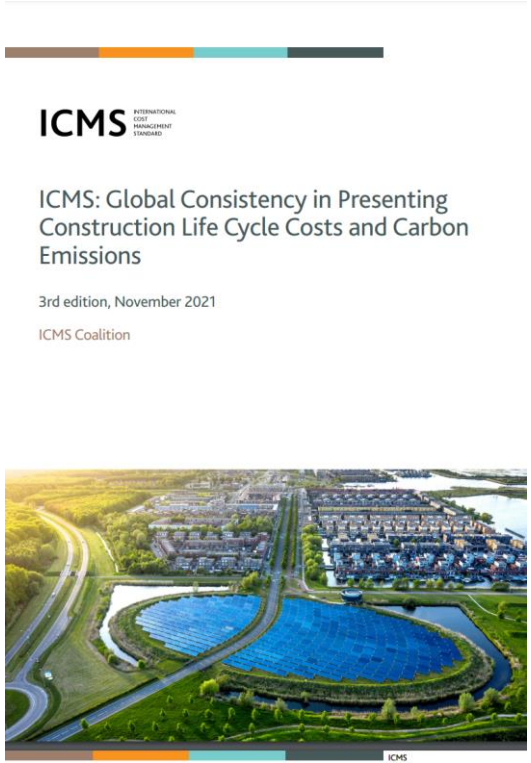


The first GLOBAL standardised cost structure

A coalition of over 49 global organisations

Translated into 5 different languages

It is NOT a method of measurement (quantities) or pricing rule



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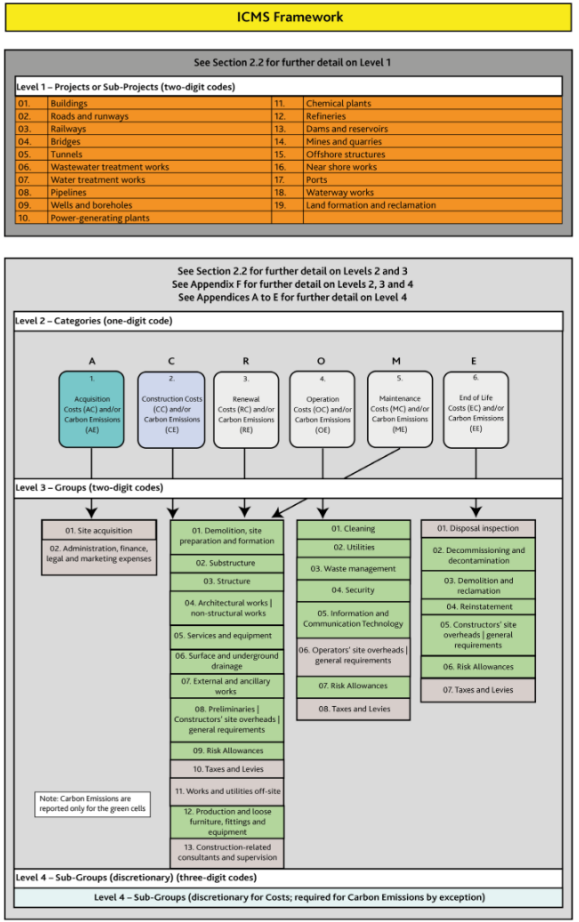
LEVEL 1. From **01. Buildings** to **19. Land formation and reclamation**

LEVEL 2. From **A. Acquisition Costs** to **E. End of Life Costs**

LEVEL 3. Cost groups

LEVEL 4. discretionary (local method of measurement)



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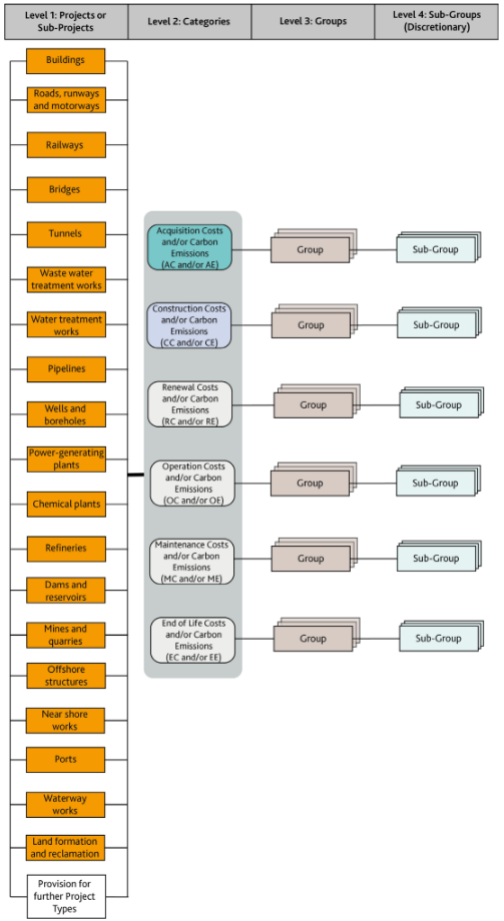

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LEVEL 1. From **01. Buildings** to **19. Land formation and reclamation**

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Code		Description			
		Categories (Level 2)	AC	CC	RC, OC, MC and EC
		Groups (Level 3)			
		Life Cycle Cost (CC plus NPV of RC, OC, MC, and EC)			
1.		Acquisition Costs (AC) [Part of Non-Construction Costs]			
2.		Construction Costs (CC)			
3.		Renewal Costs (RC)			
4.		Operation Costs (OC)			
5.		Maintenance Costs (MC)			
6.		End of Life Costs (EC)			
1.		Acquisition Costs (AC)			
	01.	Site acquisition Scope: All payments required to acquire the site, excluding physical construction.			
	02.	Administrative, financial, legal and marketing expenses Scope: All other expenses associated with Project realisation, from inception to putting the Project into use, excluding physical construction.			
2.		Construction Costs (CC)		Categories CC, RC and MC use the same Groups	
3.		Renewal Costs (RC)			
5.		Maintenance Costs (MC)			
	01.	Demolition, site preparation and formation Scope: All necessary advance or facilitating work to prepare, secure and form the site to enable substructure [construction | renewal | maintenance]			

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It is not just project costs but also project attributes

Project Attributes	Values
Common for all Projects and Sub-Project Types (Project level only)	
Report	
Project title	
Status of cost and/or carbon emissions report	pre-construction forecast | at tender | during construction | actual costs and/or carbon emissions of construction post-completion | renewal forecast during use | end of life forecast
Date of cost and/or carbon emissions report	(month and year)
Revision number of cost and/or carbon emissions report	
Brief description of the Project	
• client's name	
• main Project type (principal Sub-Project)	
• brief scope	
Location and country	International Organization for Standardization (ISO) country code (e.g. CN) | address of building site(s) | start and end locations for linear civil engineering works

KOSMOS

It is not just project costs but also project attributes

Project Attributes	Values
Common for all Projects and Sub-Project Types (Project level only)	
Sub-Projects included	buildings | roads and runways | railways | bridges | tunnels | wastewater treatment works | water treatment works | pipelines | wells and boreholes | power-generating plants | chemical plants | refineries | dams and reservoirs | mines and quarries | offshore structures | near shore works | ports | waterway works | land formation and reclamation | common | other stated
Construction Cost Price Level	
ISO currency code (e.g. USD)	
Base date of costs (if individual cost is exclusive of Price Level Adjustments after that date)	(month and year)
Price basis	fixed unit rates | unit rates subject to fluctuating adjustment
Construction Cost Currency Conversion	
Conversion date	
Exchange rates or other conversion factors (used to convert a cost report of multi- currencies into a single currency)	(numeric conversion and currency codes)
Construction Programme	
Project status	initiation and concept phase | design phase | construction and commissioning phase | complete
Construction period	
• number of months	
• start date (planned or actual)	(month and year)
• end date (planned or actual)	(month and year)
Site	
Existing site status	
• state of use	greenfield | brownfield
• type of use	urban | rural | agricultural
Legal status of site	freehold | leasehold | joint venture | not owned | other stated
Site topography	principally flat | principally hilly | mountainous | offshore | other stated
Ground conditions (predominant)	soft | rocky | reclaimed | submerged | swampy
Seismic zones (state more than one if applicable based on location)	
Site conditions and constraints	
• access problems	difficult | average | easy

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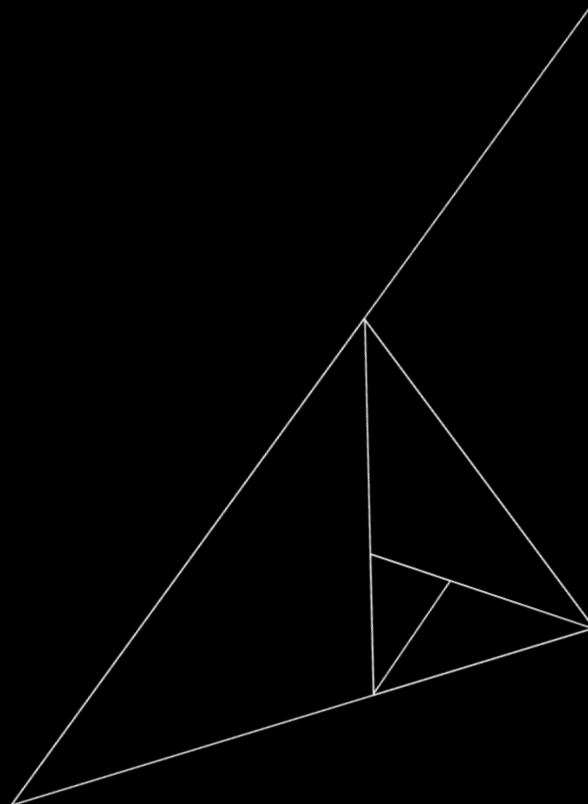
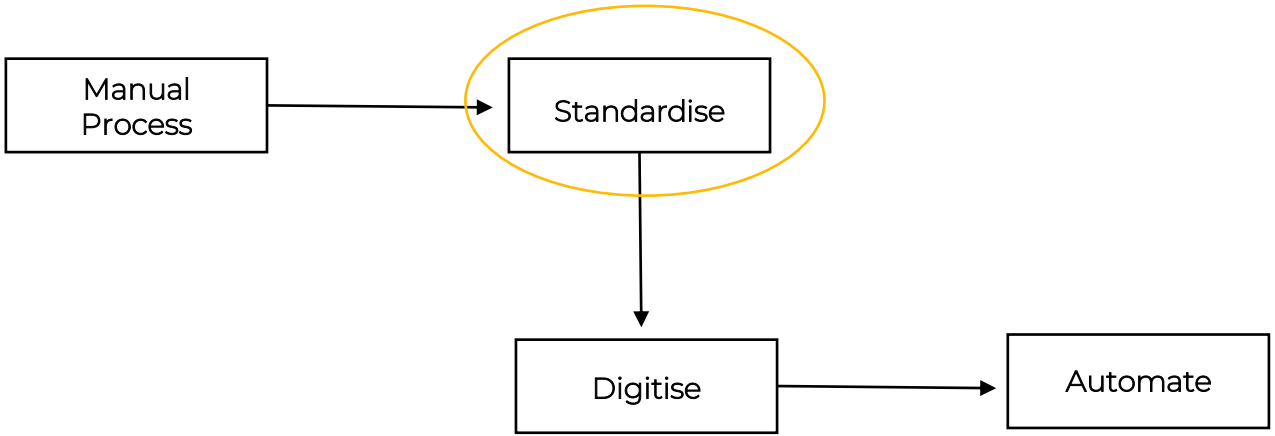
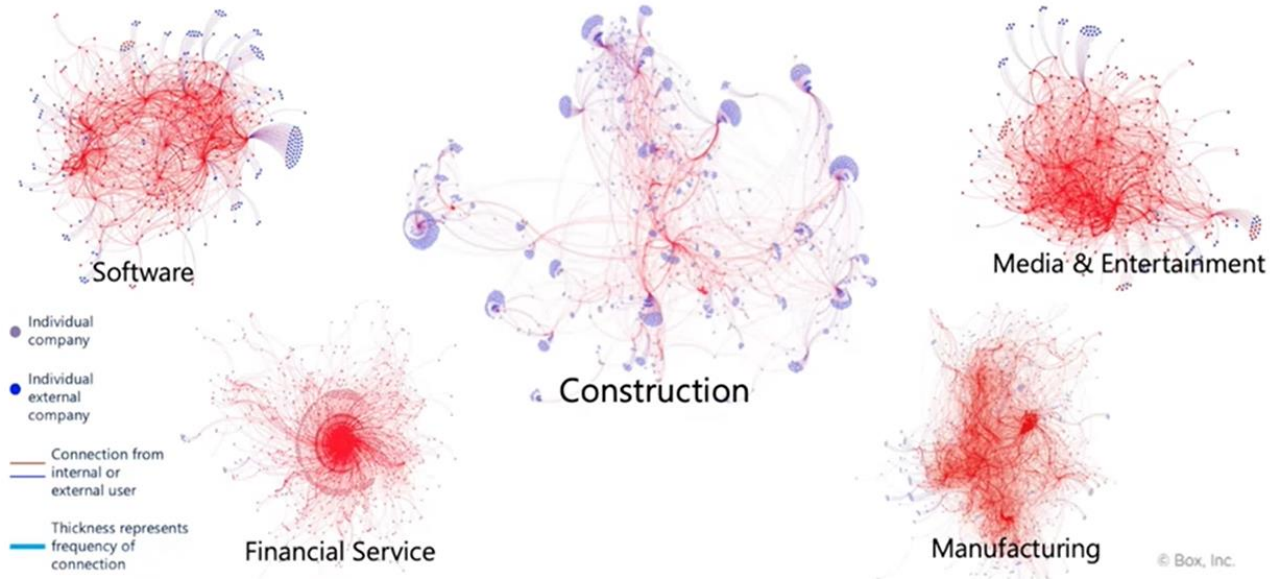
Why Standardise?




Manual Process
Standardise
Digitise
Automate

Information management

Patterns of the construction industry
in comparison to other industries



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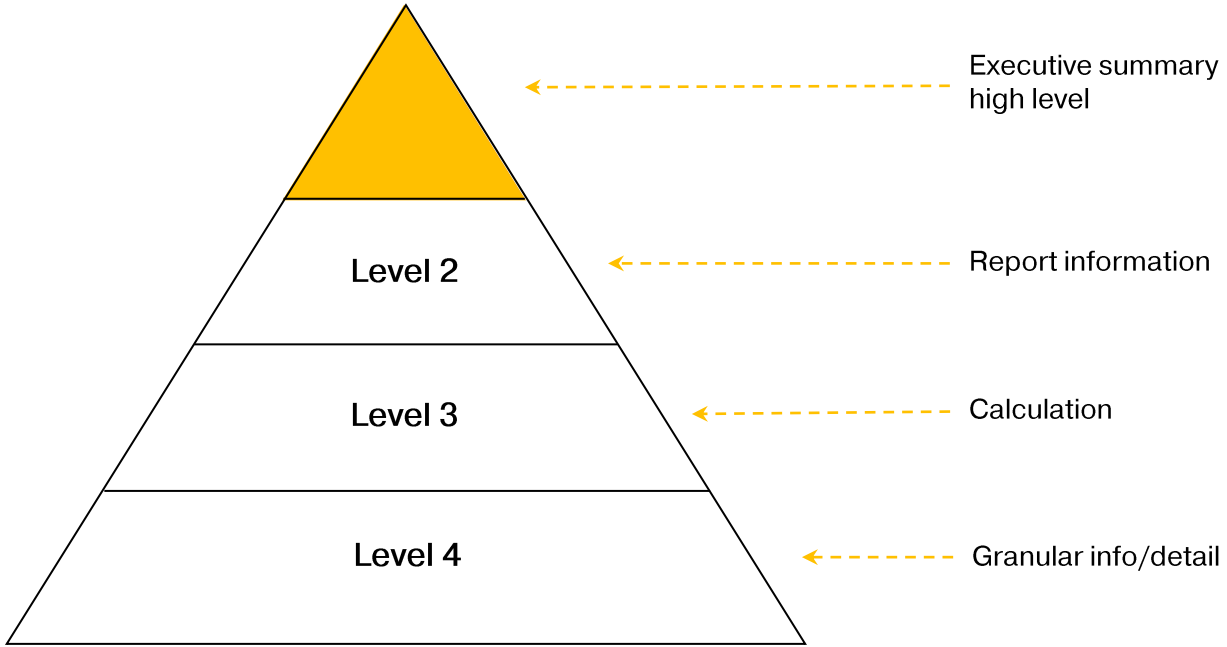
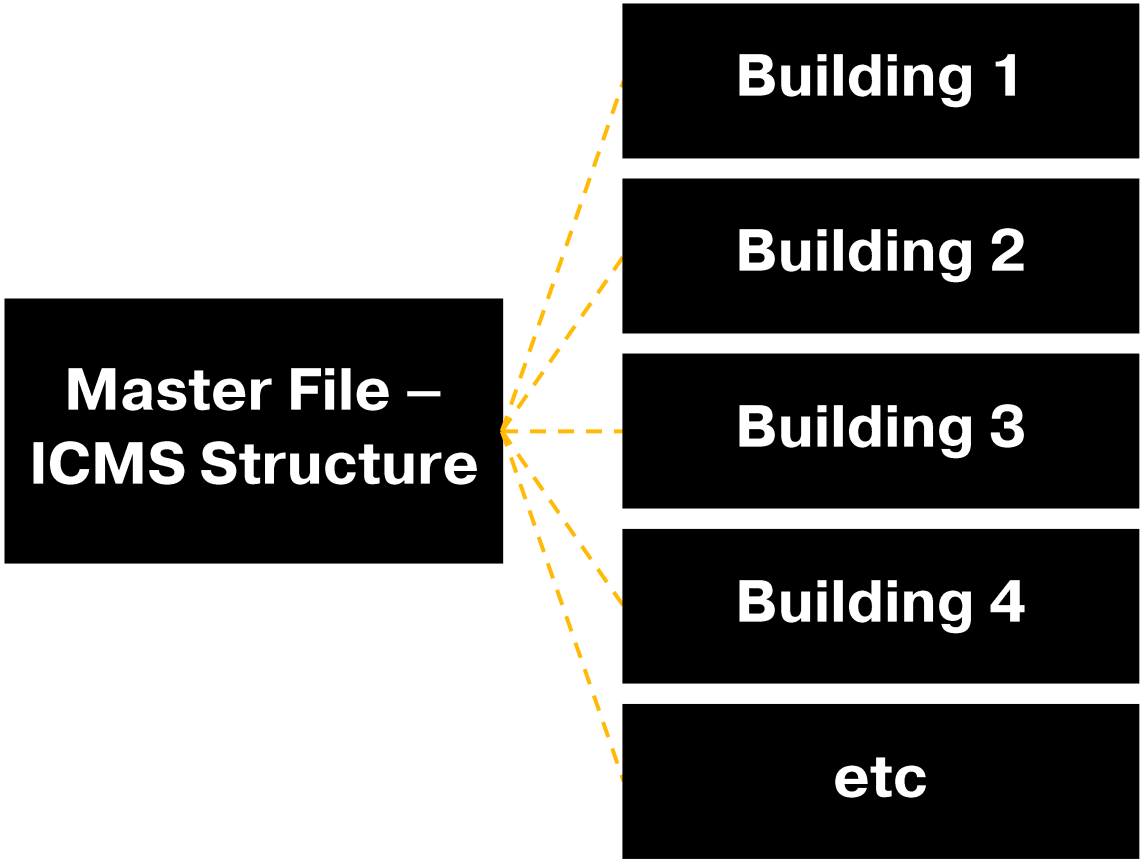
Information level:



Standardising Projects

How we used a master file process with estimating software and split into 26 buildings



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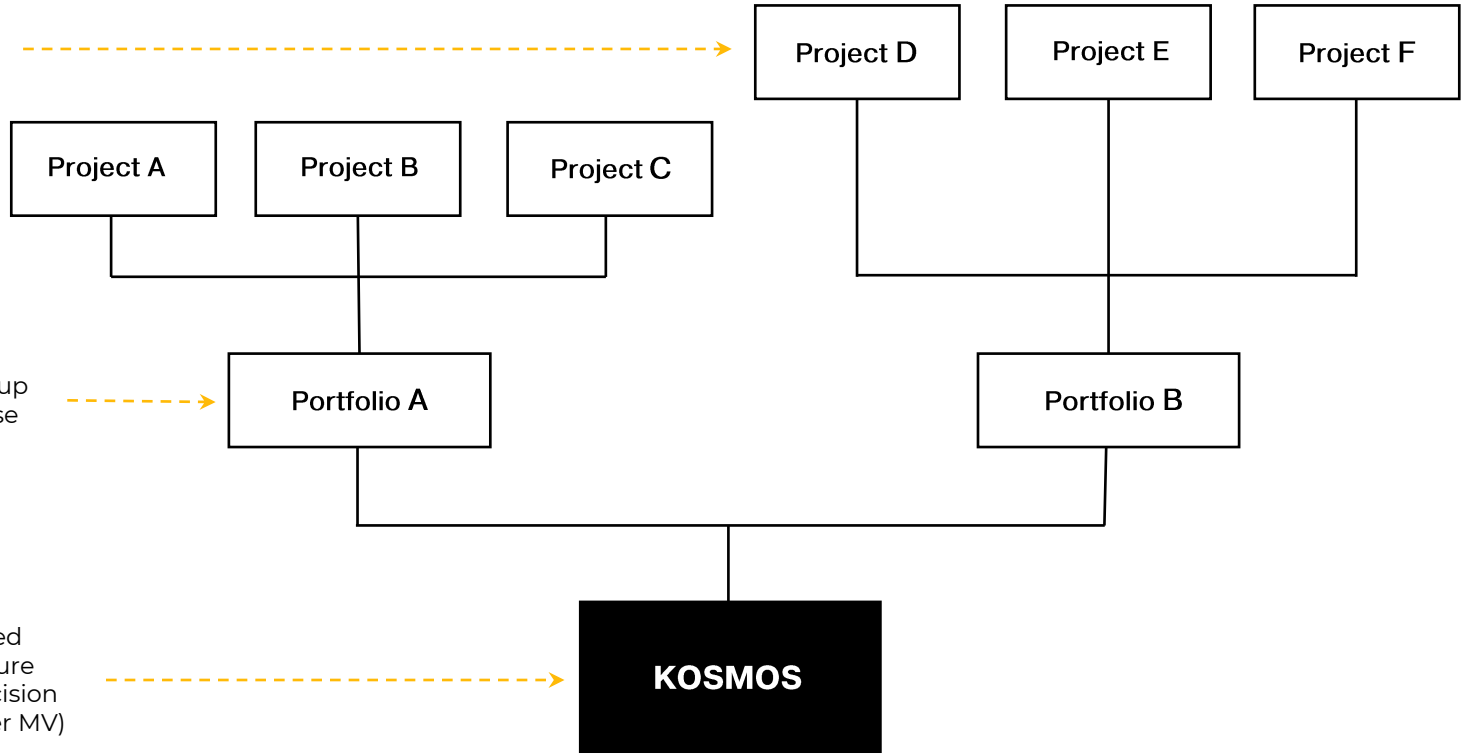
Same structure:

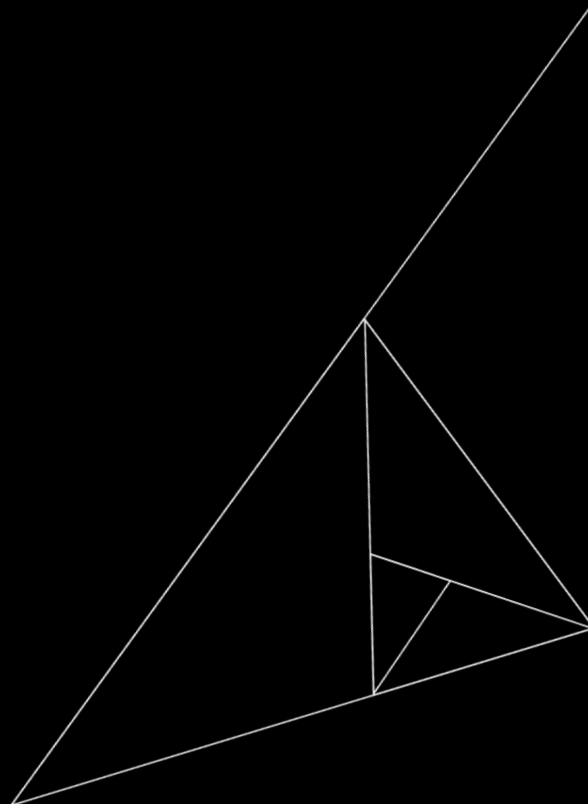
1. Same cost break down structure on all projects

2. Cost information rolled up and collected for future use

3. Cost information collected in central data base for future business development decision making (m2 prices, cost per MV)



DATA & DATA Management



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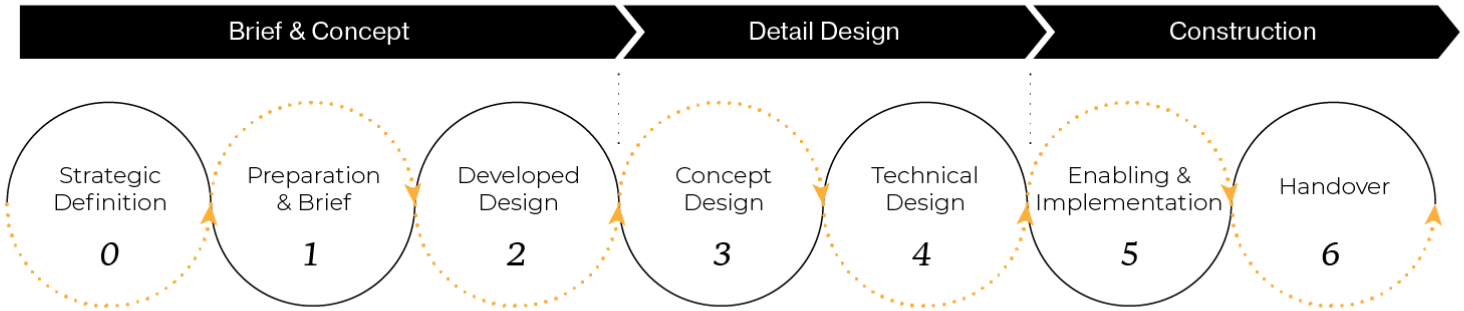
We need to go from this...



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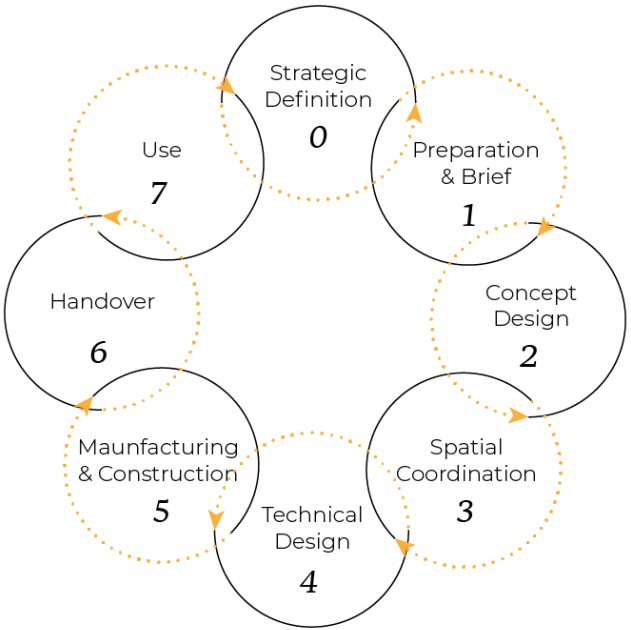
To this



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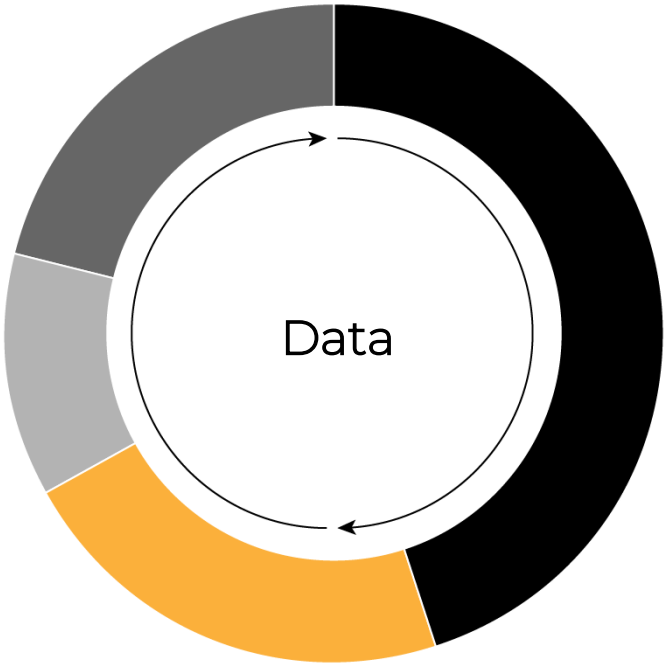
Closing the loop on project cost circularity



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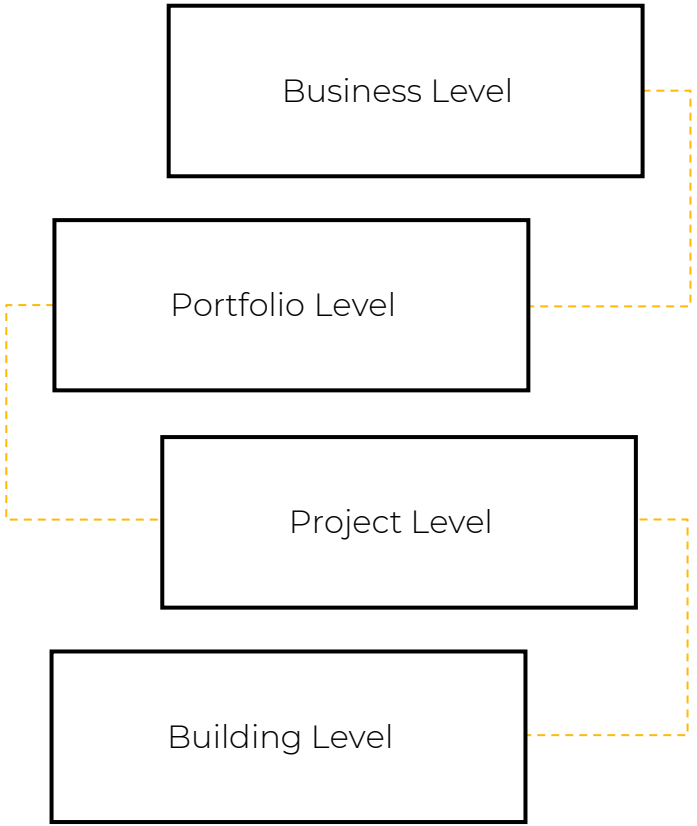
Not just at project level, but at business, regional and national level



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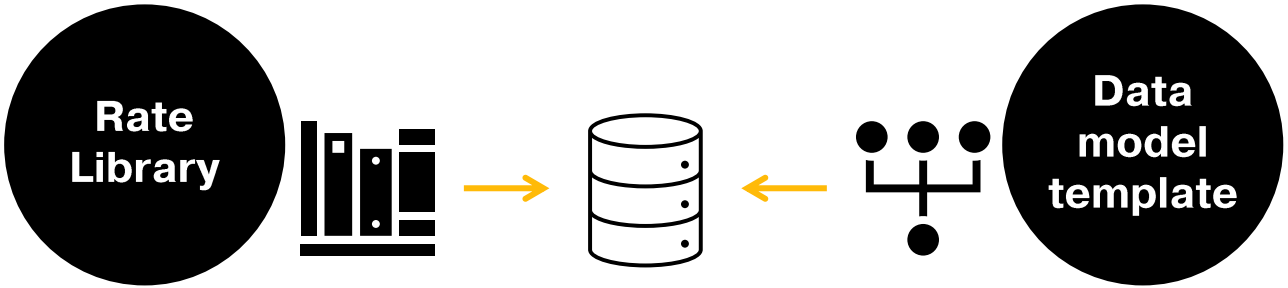
Data Management

Now we focus on Data rather than estimating
Now we structured information in our Estimating Software to improve the estimating process



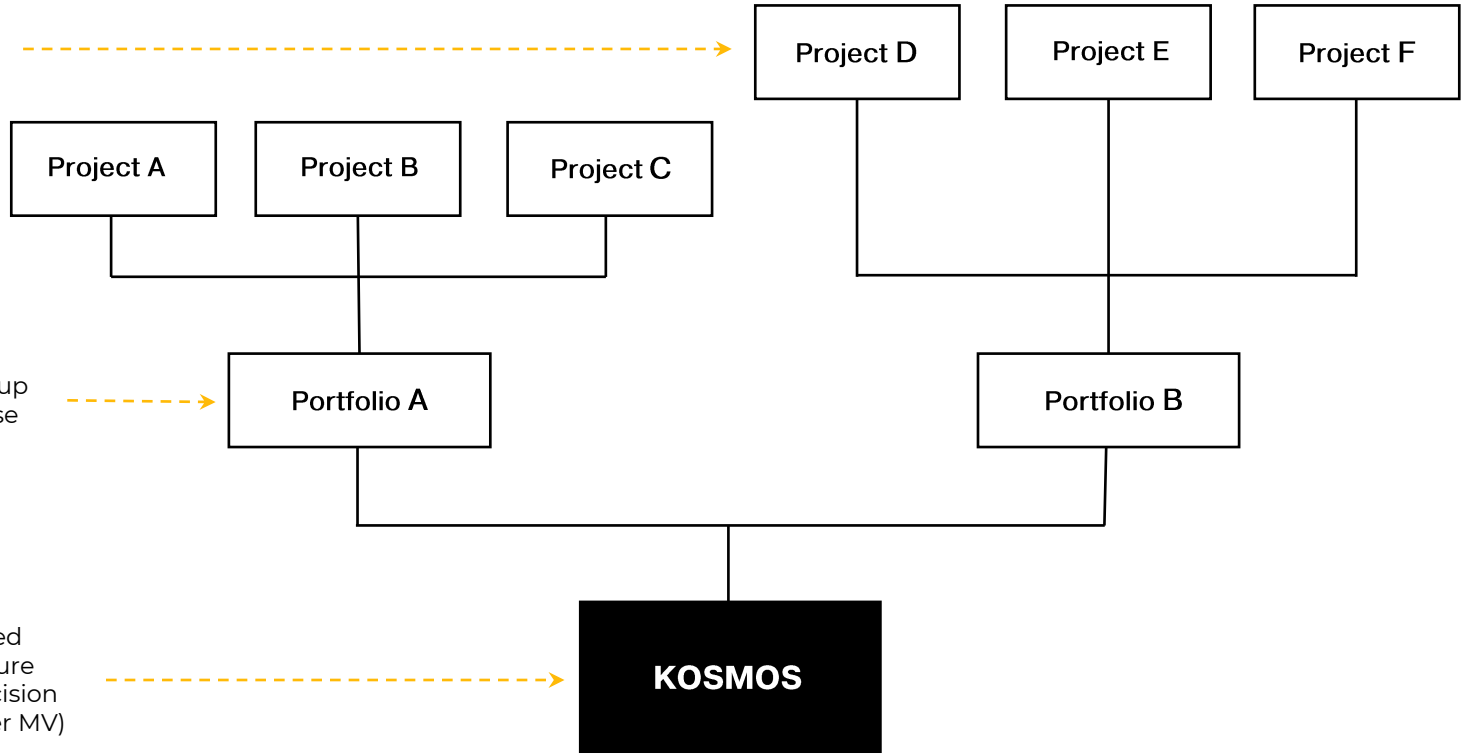
Standardised cost structure for the project developing the level of detail per phase - ICMS

Same structured Data:

1. Same cost break down structure on all projects

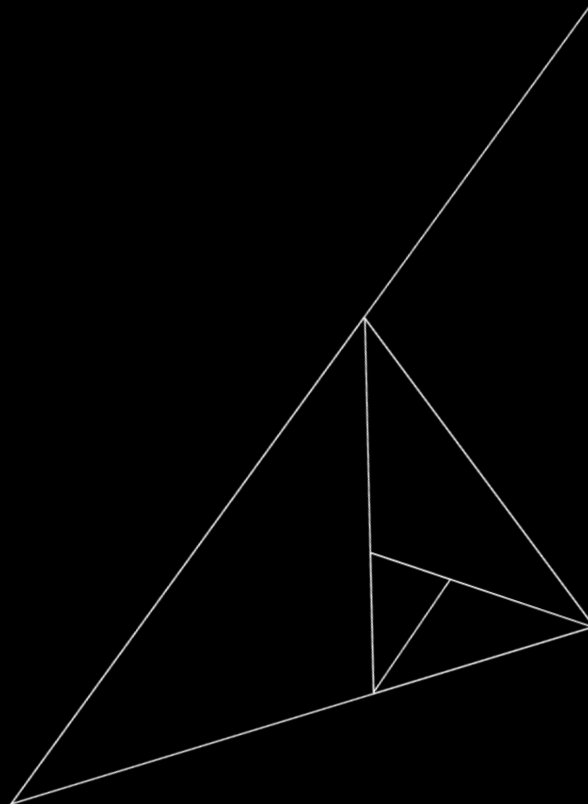
2. Cost information rolled up and collected for future use

3. Cost information collected in central data base for future business development decision making (m2 prices, cost per MV)



ICMS implementation

Should be easy, right?...



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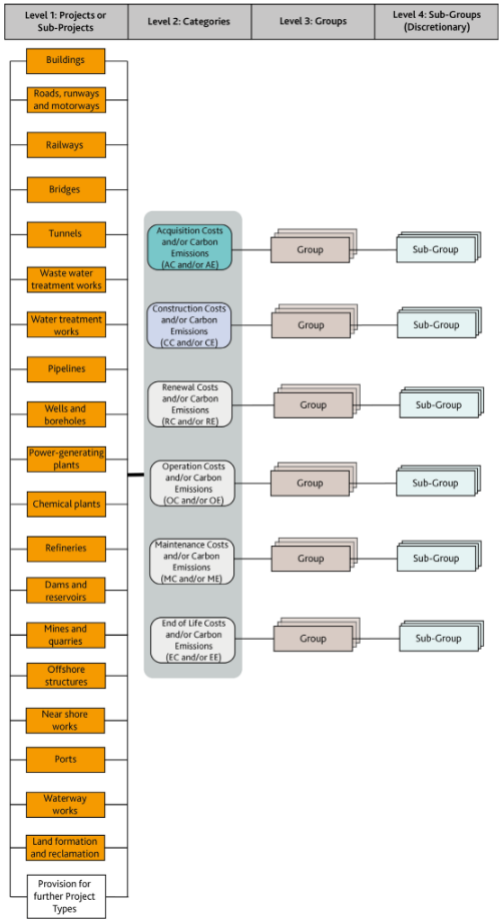

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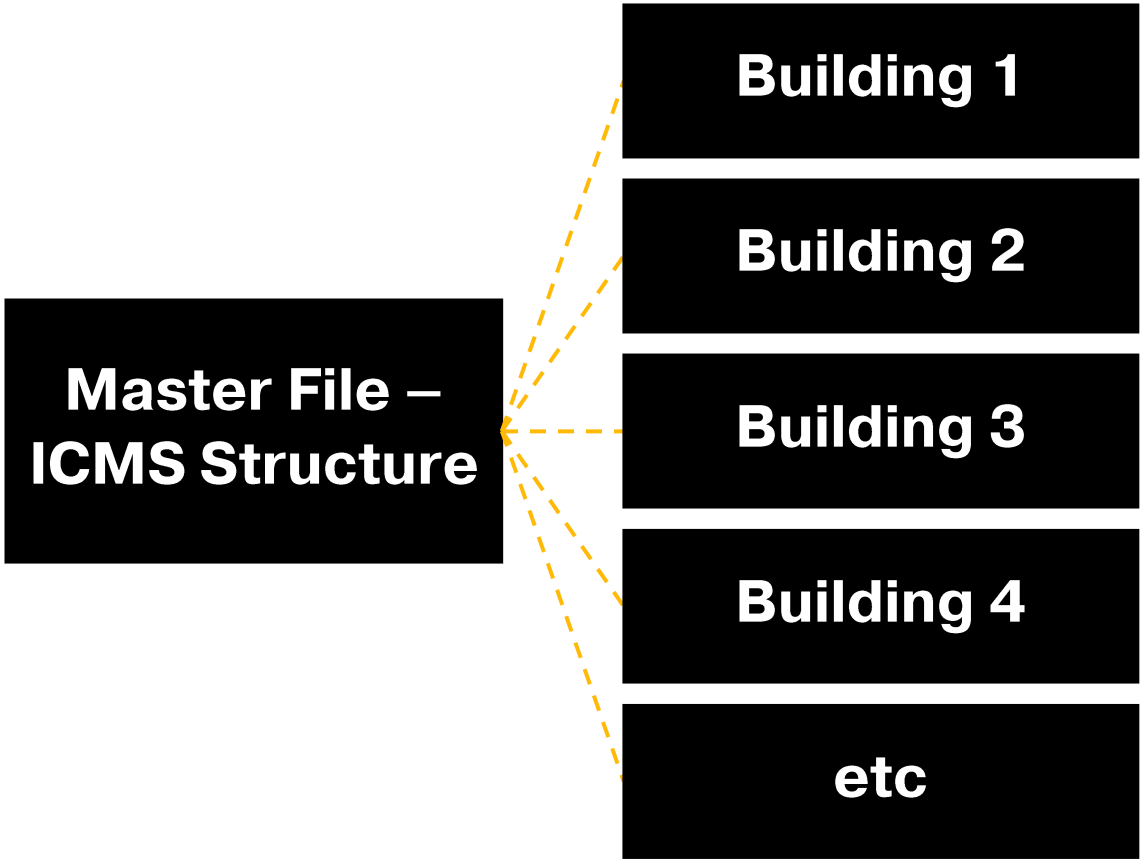
Does Not consider

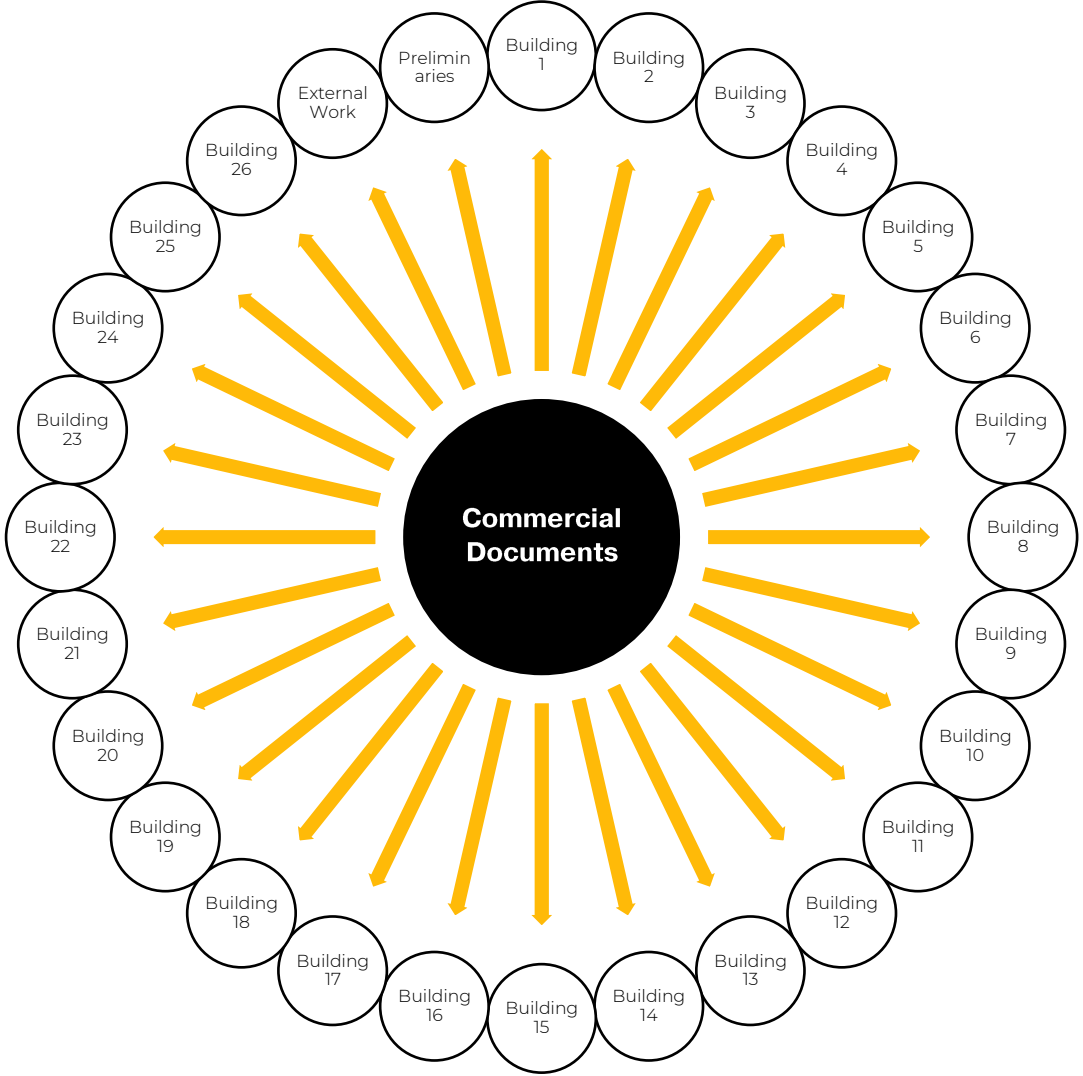
Multi building projects



Previous project example

Number of ICMS documents produced:

26 individual buildings
+ External works
+ Preliminaries
+ Preambles
+ Risk
+ OH&P
+ Options
+ Price List



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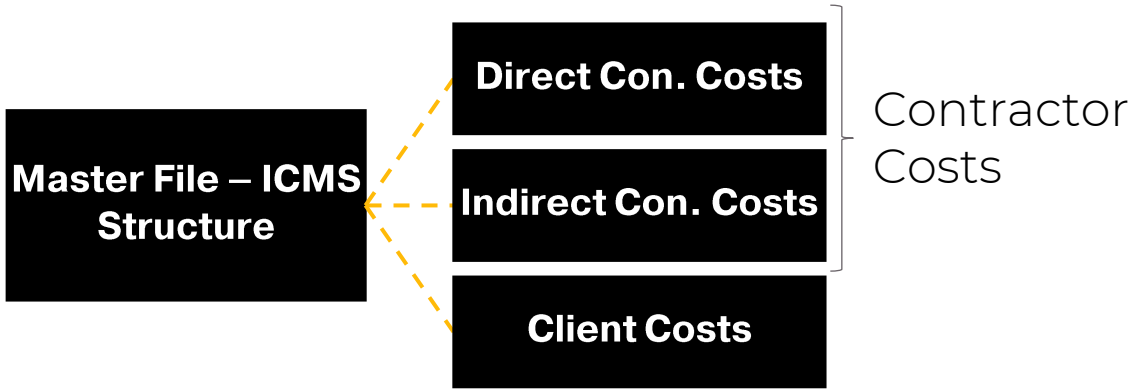
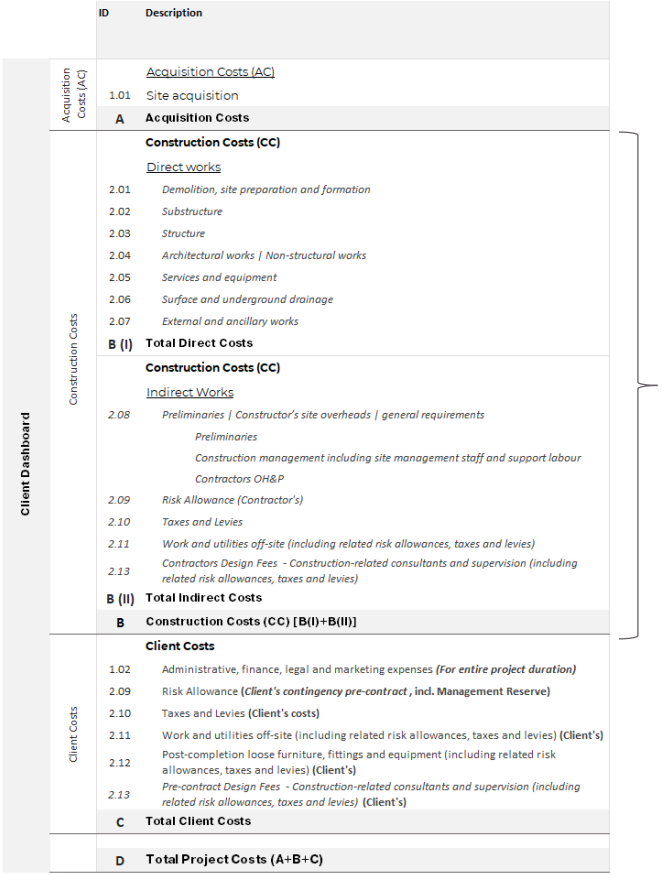
Does Not consider

How clients want to see the cost information



Does Not consider

How clients want to see the cost information



		ID	Description
Client Dashboard	Acquisition Costs (AC)		Acquisition Costs (AC)
		1.01	Site acquisition
		A	**Acquisition Costs**
	Construction Costs		**Construction Costs (CC)**
			Direct works
		2.01	*Demolition, site preparation and formation*
		2.02	*Substructure*
		2.03	*Structure*
		2.04	*Architectural works | Non-structural works*
		2.05	*Services and equipment*
		2.06	*Surface and underground drainage*
		2.07	*External and ancillary works*
		B (I)	**Total Direct Costs**
			Construction Costs (CC)
			Indirect Works
		2.08	*Preliminaries | Constructor's site overheads | general requirements*
			Preliminaries
			Construction management including site management staff and support labour
			Contractors OH&P
		2.09	*Risk Allowance (Contractor's)*
		2.10	*Taxes and Levies*
		2.11	*Work and utilities off-site (including related risk allowances, taxes and levies)*
		2.13	*Contractors Design Fees - Construction-related consultants and supervision (including related risk allowances, taxes and levies)*
		B (II)	**Total Indirect Costs**
		B	**Construction Costs (CC) [B(I)+B(II)]**
	Client Costs		**Client Costs**
		1.02	Administrative, finance, legal and marketing expenses ***(For entire project duration)***
		2.09	Risk Allowance **(*Client's contingency pre-contract* , incl. Management Reserve)**
		2.10	Taxes and Levies **(Client's costs)**
		2.11	Work and utilities off-site (including related risk allowances, taxes and levies) **(Client's)**
		2.12	Post-completion loose furniture, fittings and equipment (including related risk allowances, taxes and levies) **(Client's)**
		2.13	*Pre-contract Design Fees - Construction-related consultants and supervision (including related risk allowances, taxes and levies)* **(Client's)**
		C	**Total Client Costs**
		D	**Total Project Costs (A+B+C)**

Contractor Costs

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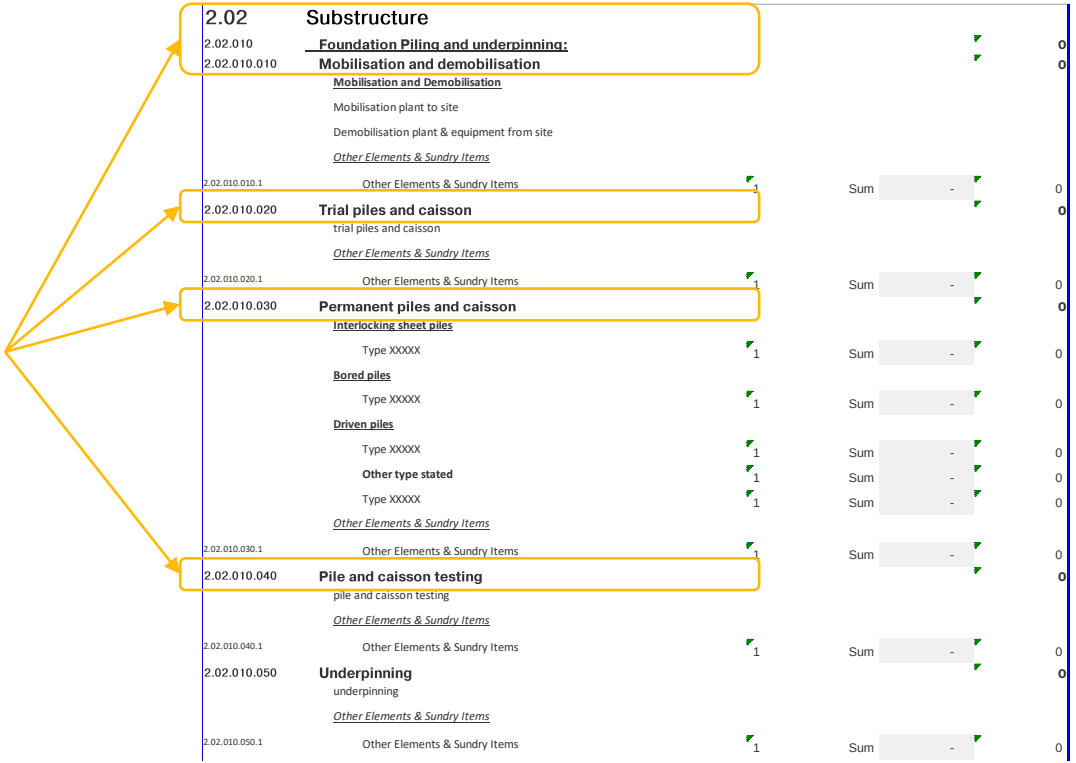
What happens after ICMS level 3?

ICMS Standard Headings



2.02	**Substructure**				
2.02.010	**Foundation Piling and underpinning:**				0
2.02.010.010	**Mobilisation and demobilisation**				0
	Mobilisation and Demobilisation				
	Mobilisation plant to site				
	Demobilisation plant & equipment from site				
	Other Elements & Sundry Items				
2.02.010.010.1	Other Elements & Sundry Items	1	Sum	-	0
2.02.010.020	**Trial piles and caisson**				0
	trial piles and caisson				
	Other Elements & Sundry Items				
2.02.010.020.1	Other Elements & Sundry Items	1	Sum	-	0
2.02.010.030	**Permanent piles and caisson**				0
	Interlocking sheet piles				
	Type XXXXX	1	Sum	-	0
	Bored piles				
	Type XXXXX	1	Sum	-	0
	Driven piles				
	Type XXXXX	1	Sum	-	0
	Other type stated	1	Sum	-	0
	Type XXXXX	1	Sum	-	0
	Other Elements & Sundry Items				
2.02.010.030.1	Other Elements & Sundry Items	1	Sum	-	0
2.02.010.040	**Pile and caisson testing**				0
	pile and caisson testing				
	Other Elements & Sundry Items				
2.02.010.040.1	Other Elements & Sundry Items	1	Sum	-	0
2.02.010.050	**Underpinning**				0
	underpinning				
	Other Elements & Sundry Items				
2.02.010.050.1	Other Elements & Sundry Items	1	Sum	-	0

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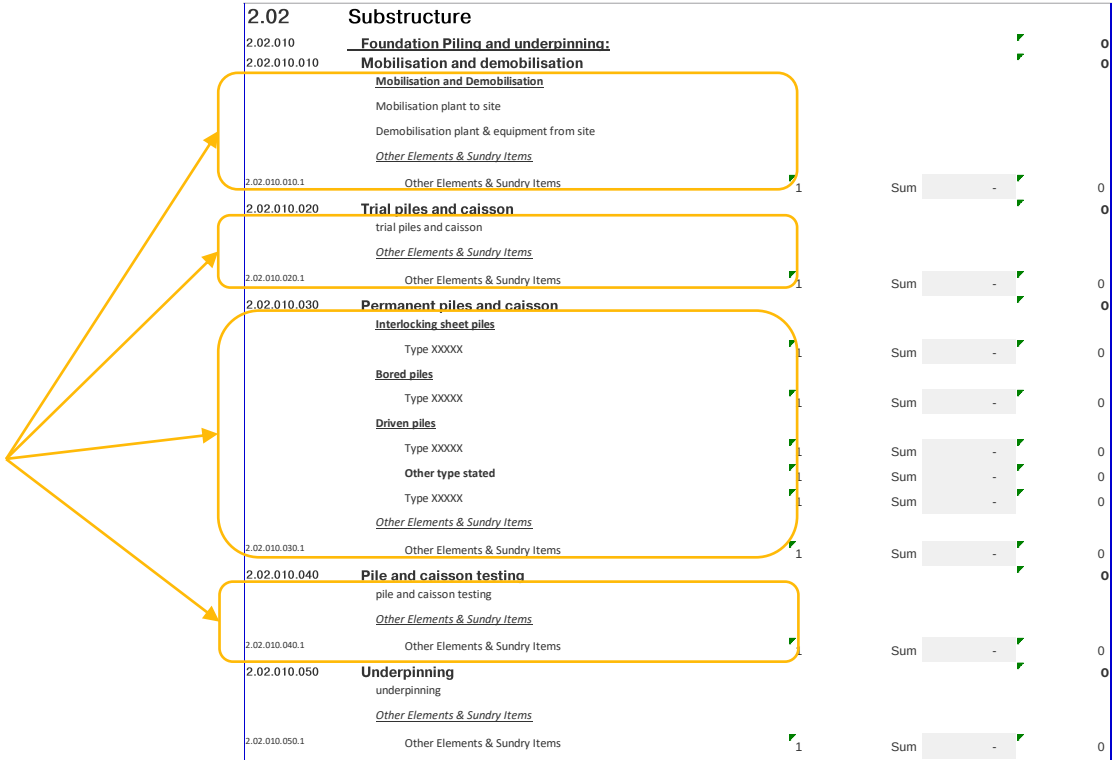
What happens after ICMS level 3?

A local MoM used



2.02	Substructure				
2.02.010	Foundation Piling and underpinning:				0
2.02.010.010	Mobilisation and demobilisation				0
	Mobilisation and Demobilisation				
	Mobilisation plant to site				
	Demobilisation plant & equipment from site				
	Other Elements & Sundry Items				
2.02.010.010.1	Other Elements & Sundry Items	1	Sum	-	0
2.02.010.020	Trial piles and caisson				0
	trial piles and caisson				
	Other Elements & Sundry Items				
2.02.010.020.1	Other Elements & Sundry Items	1	Sum	-	0
2.02.010.030	Permanent piles and caisson				0
	Interlocking sheet piles				
	Type XXXXX	1	Sum	-	0
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	Driven piles				
	Type XXXXX	1	Sum	-	0
	Other type stated	1	Sum	-	0
	Type XXXXX	1	Sum	-	0
	Other Elements & Sundry Items				
2.02.010.030.1	Other Elements & Sundry Items	1	Sum	-	0
2.02.010.040	Pile and caisson testing				0
	pile and caisson testing				
	Other Elements & Sundry Items				
2.02.010.040.1	Other Elements & Sundry Items	1	Sum	-	0
2.02.010.050	Underpinning				0
	underpinning				
	Other Elements & Sundry Items				
2.02.010.050.1	Other Elements & Sundry Items	1	Sum	-	0

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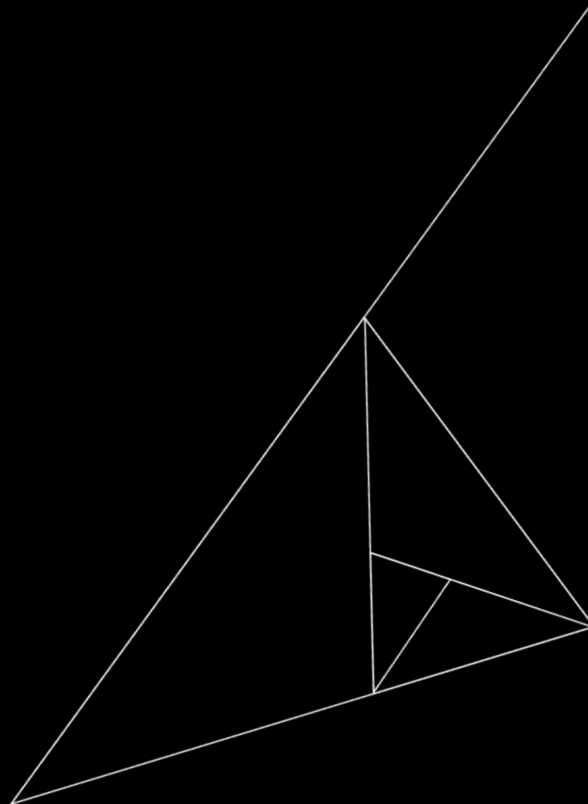
The Final Frontier

Data analytics, Artificial Intelligence (AI), Augmented reality, Machine Learning...



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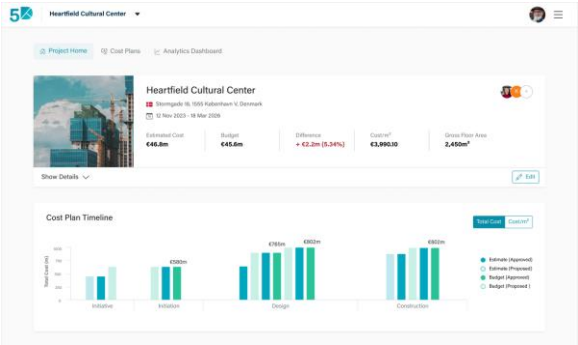
Data Analytics



Artificial Intelligence

Augmented Reality

Machine Learning

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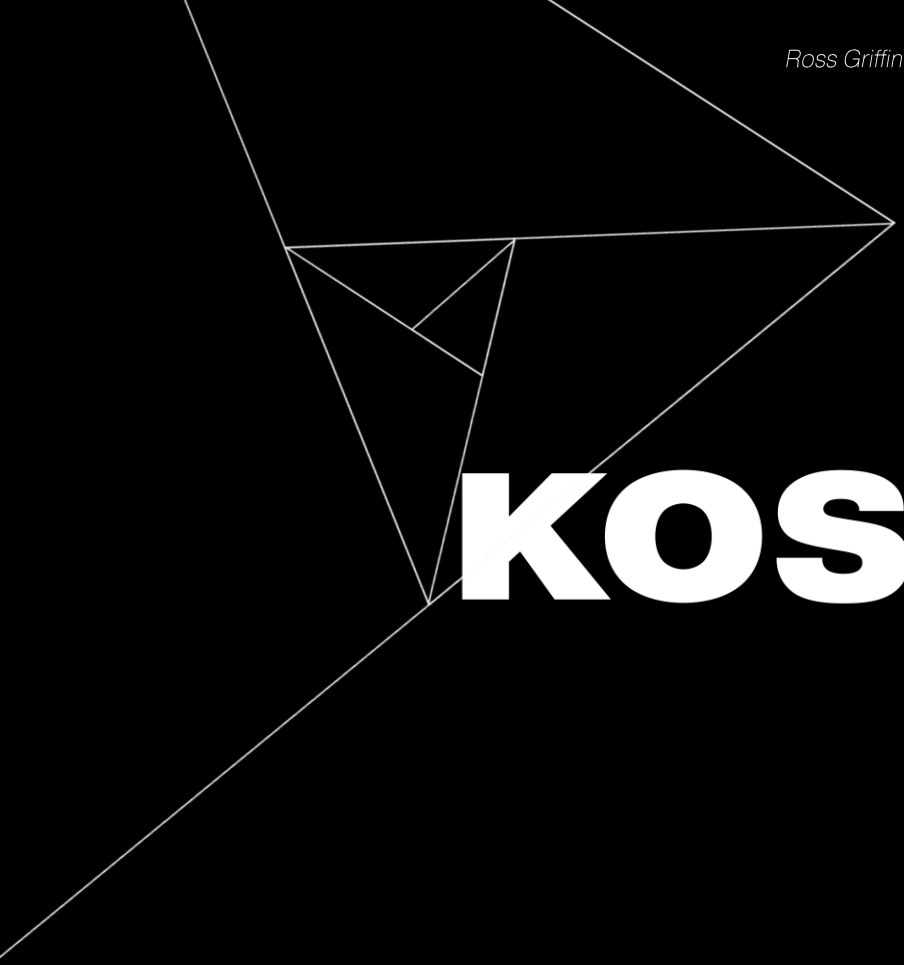
Conclusion:

- Standards and standardising is key to improving business and project efficiency
- Standards improve the teams understanding of the information
- Standardisation is required to move towards data management
- By doing so now you will project yourself against the future

- *Use your network for help and advice. Write to us here in KOSMOS, we are more than happy to help*

Ross Griffin – 06 June 2023



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15 June 2023

Ross Griffin
Founder of KOSMOS - Providing commercial control to your project

Elia González
Co-Founder & Commercial manager / Quantity Surveyor ...

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